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ABSTRACT OF THE PROCEEDINGS
OF THE
INTERNATIONAL CONGRESS
OF
HYGIENE AND DEMOGRAPHY,
HELD IN LONDON, AUGUST, 1891.
AND
EDITED BY EDWARD FARRELL, M. D.,

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INTERNATIONAL HEALTH CONGRESS.

DR. FARRELL'S REPORT.

HONORABLE W. S. FIELDING,

Provincial Secretary.

SIR:—In accordance with instructions from the Honorable the Executive Council I proceeded to the meeting of the Seventh International Congress of Hygiene and Demography, held in London in the month of August, 1891.

The object of this large and widely representative association is simply to make a universal crusade against preventable diseases.

It is only within the past quarter of a century that Sanitary Science has taken its present prominent position as a department of medicine, and it is within a much shorter period that governments have begun to recognize its importance—the importance of avoiding disease and preventing unnecessary death. The vast cost of disease to the people, and the immense loss which unnecessary mortality causes not only to the family but to the State, is almost incalculable. It remains yet for the future to place Hygiene among the departments of government with the same executive power that obtains in other branches of the public service. In these days, when all the discoveries of modern science are quickly utilized to minister to the comfort and convenience of the people, it must be but a very short time before progressive governments will recognize the true position of sanitary science, and have a Minister of Public Health, as they have now a Minister of Justice or a Minister of Public Works.

The first of these Health Congresses was held in Brussels in 1876. This was followed by the meeting in Paris in 1878, which was such a brilliant success that the International Health Congress became a permanent institution. Then came subsequent meetings at Turin, Geneva, the Hague, and Vienna, each one more successful than its predecessor, both in the interest and value of its discussions and in the number of countries represented.

It is a pleasure to note that Canada was ahead of many older countries in her recognition of the importance of sanitary progress, as will be seen by the following extract from the account of the second Congress held in Geneva in 1882, in the London *Lancet* of that year:

"The Board of Health of Ontario (Canada) was represented by Dr. C. W. Covernton, but not a single English town or administration sent a representative."

I might also point with pride to the fact that in 1876, the year the first congress was held in Europe, the House of Assembly in our own Province had a special committee on public health, the result of whose

labors in regard to the causes of preventable diseases will be found in the proceedings of the Legislature of that year.

The opening meeting of the Seventh Congress was held in St. James' Hall, London, Monday, August 10th, 1891. The official journal of the Congress says:—"Never have so many eminent Hygienists from all countries collected." (Then follows a long list of those present—distinguished men prominent in Church and State, and men of eminence in science from almost all parts of the world.)

The distinguished President, His Royal Highness the Prince of Wales, opened the meeting with an excellent speech, which is reported as follows:—

"The Prince of Wales, who was loudly cheered on rising, said:—

"Sir Douglas Galton, Ladies and Gentlemen,—It gives me great pleasure to open the proceedings of this congress, and offer a hearty greeting to all its members, especially to those whom it has induced to come from distant countries. Many as have been the meetings for good purposes over which it has been my good fortune to preside, there has very rarely, if ever, been one of which the object has been approved by a greater weight of authority (cheers). The importance of our congress is proved, not only by the large number of members who have assembled here to-day, but by the names of those who are on the list of its officers, both honorary and active. Under the Queen's patronage this list includes, together with several members of my family, some of the principal members of Her Majesty's Government, the presidents of nearly all the medical corporations, representatives of the Universities, and of the chief medical and scientific societies in the United Kingdom, delegates from nearly every great country in the world, and from all our sanitary institutions and medical schools, many official representatives of our colonies and India, the Lord Mayor and Sheriffs of the City of London, the masters of several of the City Companies, and a great majority of those who, here or elsewhere, have gained the highest renown in the study of public health or of the sciences most nearly allied to it (cheers). All these approve the design of the Congress, and they may well do so, for in so far as its objects can be fulfilled, it will everywhere bring good to all classes of society. As one looks through our programme, it is impossible not to feel distress and even horror at the multitude of dangers to health in the midst of which we have to live. Some of them appear at present to be inevitable, but the great majority may certainly with due care be averted. (Cheers.) I cannot pretend to be able to judge of many of these dangers, but I would take as examples those to which my attention was especially drawn when I was a member of the Royal Commission on the dwellings of the working classes. I learned much there of the dangers to health which may be ascribed to the constant increase of our great manufacturing, and to other industries, from which especially come the overcrowding of our towns, the building of huge factories, the pollution of our atmosphere, the accumulation of refuse, the fouling of rivers, the impurities of earth and air and water. I learned not only these dangers, but the immense difficulty of increasing or even maintaining our activity in all branches of trade without incurring heavy risk to health, more particularly in our chief centres of population.

The task of averting them might have appeared hopeless, but I have rejoiced to see how much has already been done in diminishing them, and to observe how our registers bear witness to the decreasing mortality in our large towns, to the increasing average length of life in the whole population, and of many facts proving the good influence of our sanitary institutions. But on them I do not now propose to dwell. I will only conclude from them that the good already done and the constantly increasing knowledge of the whole subject, may make us sure that much more good may still be attained, and that neither this nor any other nation should be content until prosperity in business and all other things desirable for the national welfare are made consistent with national good health. How the many dangers which our programme indicates may best be dealt with will, of course, be discussed in the several sections. It will be no trivial work if their sources and probable remedies can be clearly pointed out, and especially if this can be done, as in a Congress such as this it should be, in a strictly scientific manner, calmly and dispassionately, without any reference to either general or municipal politics, or for any other purpose than the promotion of health. (Cheers). It is only on conviction such as may thus be produced that the appointed sanitary authorities can compel the changes necessary to be made; for such changes are almost always inconvenient or injurious to some, and might even seem unjust to them, unless it be made quite clear that they would be very beneficial to the community. But my hope is that the work of this Congress may not be limited to the influence which it may exercise on sanitary authorities. It will have a still better influence if it will teach all people in all classes of society how much everyone may do for the improvement of the sanitary conditions among which he has to live. I say distinctly "all classes," for although the heaviest penalties of insanitary arrangements fall on the poor, who are themselves least able to prevent or bear them, yet no class is free from their dangers or sufficiently careful to avert them. Where could one find a family which has not in some of its members suffered from typhoid fever or diphtheria, or others of those illnesses which are especially called "preventable diseases"? Where is there a family in which it might not be asked, "If preventable, why not prevented?" I would add that the questions before the Congress, and in which all should take a personal interest, do not relate only to the prevention of death or of serious diseases, but to the maintenance of the conditions in which the greatest working power may be sustained. In this I include both mental and bodily power, for the highest possible prosperity must be when men and women of all classes, rich and poor alike, can safely do such good and useful work as they are fit for, and for which they are responsible to those among whom they live. To this end it is essential that they should enjoy the best possible health and vigor, and to obtain these it is necessary that everything possible should be done for the promotion and maintenance of the national health. Such then is to be your work; let me say our work, for though I cannot further contribute to the proceedings of the Congress, I shall watch them with much interest, and shall always strive to promote whatever may be here plainly shown to be useful for the public health. (Loud cheers.)

The work of the Congress was divided into ten sections, as follows:—

- I.—PREVENTIVE MEDICINE.
- II.—BACTERIOLOGY.
- III.—RELATION OF THE DISEASES OF ANIMALS TO THOSE OF MAN.
- IV.—HYGIENE OF INFANCY AND CHILDHOOD.
- V.—CHEMISTRY AND PHYSICS IN RELATION TO HYGIENE.
- VI.—ARCHITECTURE IN RELATION TO HYGIENE.
- VII.—ENGINEERING IN RELATION TO HYGIENE.
- VIII.—NAVAL AND MILITARY HYGIENE.
- IX.—STATE HYGIENE.
- X.—DEMOGRAPHY, HEALTH STATISTICS, AND INDUSTRIAL HYGIENE.

Some idea may be gained of the wide range of subjects discussed in the various sections by giving a list of some of them.

SECTION I.—PREVENTIVE MEDICINE.

This was one of the most important sections of the Congress and attracted a larger general audience than any other.

The first subject discussed was *Quarantine*. The following papers were read:—

"1. The mode of preventing the spread of epidemic disease from one country to another.—Surgeon General J. N. Cunningham, C.S.I.

2. "Mesures a prendre a l'egard des navires provenant de regions contaminees ou suspectes pour empecher l'importation en Europe des maladies exotiques transmissibles."—Professor Proust, Paris.

3. The Communicability of cholera from country to country.—Inspector General Lawson.

4. Quarantine in Australasia, Theory and Practice.—Dr. Ashburton Thompson, New South Wales.

The discussion on the foregoing papers was carried on by Dr. Rochard, of Paris; Felkin, of Edinburgh; Simpson, of Calcutta; Hewitt, of Minnesota; Le duc de Nantes; Dr. Thorne Thorne; Brigade Surgeon McCann; the great French Scientist, Prof. Brouardel; and Dr. Stokois, of Amsterdam. It was most interesting and instructive. The point brought out most prominently was the inefficiency of quarantine as it is generally understood by governments and the public. Some went so far as to speak of the "uselessness of the Quarantine System."

There was a consensus of opinion that quarantine could not prevent the transmission of disease. Portable diseases were carried in so many ways that effective quarantine was almost impossible. Their spread was dependent upon the fact that the propagation of such diseases as Asiatic cholera, diphtheria, and the like required not only the presence of the germ of the disease but the proper soil for its growth and development, and that insanitary conditions furnished such a soil. The true method for the prevention of the carriage of disease from one country to another was the application of sanitary laws both at the port of departure as well as at the port of destination of the ship. Thorough cleanliness, isolation, and disinfection, must be rigidly enforced. There were present at this meeting, in which great interest was taken, Dr. Wickwire, the Inspecting Physi-

cian of the Port of Hanfax, and Dr. M. A. Curry of Halifax, who were spending some time in London during the Session of the Congress.

DIPHTHERIA.

This section next took up the question of diphtheria, and I regret to say that among the papers read, those which snowed the widest knowledge of the disease came from this side of the Atlantic where this disease has prevailed since about 1858 to a greater extent than in Europe. The following papers were read :—

" Sur les modes de contagion de la Diphtherite."

Dr. Schrevels, of Tournai.

Diphtheria in Minnesota.

Dr. Hewitt, of Minnesota.

Diphtheria in Massachusetts from 1871 to 1888.

Dr. Abbott, of Boston, U. S. A.

"The relationship between the occurrence of Diphtheria and the movement of the sub-soil Water."

Mr. M. A. Adams, F. R. C. S., of Maidstone.

"Memoire sur la Diphtherite au Havre."

Dr. Gibert, of Havre.

"The difference of susceptibility to Diphtheria between old and new residents."

Mr. Charles E. Paget, of Salford.

The discussion was taken part in by Dr. Edw. Seaton, of London ; Dr. Bergeron, of Paris ; Dr. Felix, of Bucharest ; Dr. D'Espine, of Geneva ; Professor Hubert, of Louvain ; and others.

There was little brought out in the discussion that is not already well-known to our medical men and boards of health. In Nova Scotia diphtheria has been by far the most prevalent and most fatal of the germ diseases, consequently it has received close attention and careful study from our practitioners. It is a fact with which those interested in the execution of our health laws are well acquainted that isolation and disinfection, if carried out effectively, will in a short time rid a community of this dread disease, or at least will so speedily lessen the number and malignancy of the cases as to justify the most radical measures on the part of the health authorities in carrying out these principles. This was proved in our own city during the prevalence of a severe type of diphtheria in 1889-90. The disease increased in regard to the number and severity of the cases until inspection with isolation and disinfection were thoroughly carried out, even to the extent of placing a guard upon the door of each infected house. In a short time under this management the virulence of the disease quickly lessened.

As this is a subject of great importance to us, a few extracts from papers presented may be an advantage.

Dr. Bergeron said, "Indeed, if I did not trust in future hygienic developments, and the good results to be obtained from such meetings as these, I should be horrified at the spread of the disease during the past few years. I have taken these five large centres of population as examples, but a cursory glance over all the sanitary statistics of France and Algeria shows the disease to be greatly on the increase,

and, indeed, to constitute a veritable calamity for our country. To what causes are we to attribute this incessant progress? Has the disease become modified? Is it changed in its type, and has it become more contagious? One must think so, because the disease spreads in these days more rapidly, while we now take so much more precaution against its contagious nature. Diphtheria is we now know—leaving aside the questions of its germ origin—a specific and contagious disease, but we are unable to class it among what M. Brouardel calls avoidable diseases, such as typhoid fever or small-pox, because we know nothing as yet of its origin. Therefore, to combat it we are reduced to disinfection and isolation; we cannot as yet take preventive measures. With regard to disinfection, if we believe that the virus exists in the false membrane, as I do, it follows that all the emanations should be destroyed, and all fomites most vigorously disinfected.”

“If we know that the germ resides in the discharges, it is very clearly indicated that these discharges should be destroyed with all due precaution. It follows also that the period of isolation should be dictated by the duration of the discharges from the passages affected. This, of course, varies in different cases.”

Dr. Gibert, of Havre, said that diphtheria appeared at Havre in 1860, being at first local in its distribution, but later spreading throughout the town, and reaching an acme of severity in 1885. A special crusade against diphtheria, called a *Brigade de Calubrité*, was then inaugurated, and by regular notification of cases and disinfection of the unhealthy localities the disease has been nearly stamped out. In Dr. Gibert's opinion, if all the doctors of the town will continue to supply accurate information to the authorities, the extinction of the disease is only a matter of time.”

Dr. Abbott, of Boston, Mass., said in summing up the views presented in his valuable papers:

1. “That diphtheria is an eminently contagious disease.”
2. “That it is infectious, not only by direct exposure of the sick to the well, but also through indirect media, such as clothing and other articles that have come in contact with the sick.”
3. “That the certainty of infection is not so great as in the case of some of the other infectious diseases, notably small-pox and scarlet fever.”
4. “That overcrowding, faulty ventilation, and filthy condition of tenements favours its spread.”
5. “That the influence of defective plumbing is not proven.”
6. “That its transmission through public and private water supplies is not proven.”
7. “That its propagation is favoured by soil-moisture, damp cellars, and general dampness of houses.”
8. “That the poison may remain ineffective in houses for a long period.”

The fifth conclusion reached by Dr. Abbott in regard to dampness favoring the propagation of diphtheria is important, and he relates a method of investigation followed by him for the purpose of determining this point.

“The following inquiry was directed to be made by the State

Board of Health of Mass. in 1889. In a city in which diphtheria was epidemic, 100 houses were selected for examination and inspection. A recent and quite severe epidemic had prevailed, in which there had been 174 deaths from diphtheria in the course of the year (1889). Fifty houses were selected in which cases of diphtheria were known to have occurred within 12 months prior to the time of inspection; 50 other houses were selected in which it was known that no cases of diphtheria had occurred during the previous five years. In general terms the houses of the latter class were as nearly identical with the former in their location, construction, and the social condition of their inmates as possible. On inspection, the actual sanitary condition of these houses was found to differ but little in the two classes. Defects of plumbing, want of proper traps, leaks in drain pipes, and other similar defects, were found about equally in the two. Not one of the 100 houses had special provision for ventilation. In one point only did there appear to be a marked difference in the two classes, and that was in the ratio of damp cellars. In the houses in which diphtheria had existed, the ratio of damp cellars was as eight to five when compared to the houses of the other class. I believe this is in accord with the observations of others to the effect that where diphtheria has once been introduced from without, it finds in dampness a congenial soil for its propagation."

"THE RELATION OF ALCOHOLISM TO THE PUBLIC HEALTH"

was the next subject discussed in this section. This, as usual, provoked an animated discussion, and strong views were presented in favor of the moderate use of Alcohol as well as of total abstention. While strong views were held on both sides, all may be said to have agreed that the State should help the community to be sober by some form of restrictive legislation.

The subject was opened by a paper by Sir Dyce Duckworth. His paper was listened to with great attention and, at its conclusion, the speaker was rewarded by a very generous round of applause. He evidently represented the views of a large majority of his hearers. He favoured the moderate use of alcoholic stimulants and opposed the views of the extreme total abstainers. He gave us the result of his experience that from one ounce to one ounce and a half of alcohol each day could be taken by an adult without injury to the system and in very many conditions with positive advantage.

He was followed by Professor Westergaard, of Copenhagen, who concluded his remarks as follows:—"It is, he said, most important to render the access to spirituous liquors difficult. The prohibitory system (Maine-laws) against the manufacturing and selling of intoxicating liquors, but usually allowing the import and sale of the same in the "original packages" was not a good one. Several facts show that this system is ineffective, and that it tempts to a surreptitious liquor traffic. The same objections may partly be raised against the "local option" system, leaving to a town, a village, or a larger district of the country to vote for local prohibition, but fraud is more easily detected under this system. The third popular American system, the high license system, seems to be more effective, as it lessens the opportunity for intemperance by reducing the number of drinking saloons,

and causing those who pay the high licence to help the authorities in the conviction of breakers of the law. There were other methods, limitation of the number of licences (Dutch System), and the Gothenburg system adopted in Sweden, Norway, and Finland. Under the latter system licences are given to companies, which are only allowed to give the shareholders a fixed rate of interest, leaving the surplus for the benefit of charitable institutions."

Dr. Norman Kerr, President of the Society for the Study of Inebriety, then made a strong speech in favour of total abstinence.

It was very plain from the tone of the discussion that there was but a very moderate sentiment in favor of prohibition, but a marked feeling for moderation.

SECTION II.—BACTERIOLOGY.

The study of Bacteriology relates to the study of the Bacteria, the Bacilli and the various germs which are known to cause disease, their growth, propagation, and the poisonous influences generated by them. This section was presided over by the great Apostle of Antiseptic Surgery, Sir Joseph Lister, Bart.

The principal speakers in this section were men of eminent scientific ability, who devoted their labors to the culture of disease germs in the laboratory, and studied the results of the inoculation of these germs into the tissues of the lower animals.

"IMMUNITY"

and the great works of Pasteur was the first subject considered. Dr. Roux and Metcinkoff of the Pasteur institute, Paris; Dr. Buchner, of Munich; Hankin, of Cambridge; Professor Emmerich, of Munich; and Fodor, of Budapest, either read papers relating much original scientific research or took part in the discussion. The subject was one of much interest.

"Why do some persons exposed to the contagion of disease germs preserve an immunity?" It is well known that if two persons are exposed equally to the contagion of disease, one may be attacked while the other is free from liability. In what way does the inoculation of the attenuated virus after the plan of Pasteur produce immunity? Why does the occurrence of an attack of contagious disease in most cases produce immunity from that disease for life? These were some of the questions discussed. Many theories were advanced to account for these peculiar changes in the system, while the closest examination revealed no evidence of variation in the character of blood or tissue. "Year by year new theories are brought forward to account for these phenomena, and modern views on the subject are acquiring more definiteness and precision as time goes on."

The relation of experiments by inoculation, chemical analysis, and microscopic examinations, attracted close attention. It was demonstrated that healthy blood even removed from the body, and, therefore, separated from "vital action" still retained the power of destroying disease germs. That the blood of a healthy person with its vigorous vital action in the blood vessels of the body has immense power to destroy bacterial germs is now an established fact; in other

words *vigorous health* is the best protective against contagious diseases.

This is one of the most practical points so far brought out. The history of the experiment and careful research involved in this discovery forms one of the most interesting chapters in bacterial study. There are certain cellular elements of the blood which have been proved to stand guard, as it were, armed with the power to destroy disease-germs when they pass into the body. This antiseptic power of the blood, to render innocuous the absorbed or inhaled bacteria and bacilli as a disinfectant does outside the body, teaches us the important lesson of the value of a well preserved and vigorous system, with rich healthy blood, uninjured by violation of nature's law. We have as it were always with us, a part of our life, a resisting power against disease germs, ever active and ready to repel their attacks.

TUBERCULAR CONSUMPTION.

The next subject discussed in this section was one of paramount importance to the physician and the public—*Tuberculosis*, or as it is known by its common name, *Consumption*. This dread disease which is so destructive of human life; the ravages of which are felt equally by rich and poor; which comes in its many forms, to the child, the adult, and the old, still defies our skill; for with the most watchful care and all that medical science can do, it almost invariably tends to a fatal result in the vast majority of cases. This disease which represents the enormous proportion of fourteen per cent. of the whole death rate must always be a fruitful field for investigation to the scientific worker until its causes are better understood and we are enabled to adopt some plan for its prevention, and develop a more effective method of cure. The first great step in this direction was taken about nine years ago, when the discovery of the tubercle bacillus or the germ of consumption was made. This discovery places tuberculosis among the germ diseases, or in the same category as diphtheria, typhoid fever, or small-pox, a contagious disease transmissible from place to place and from person to person.

This important discovery of the tubercle bacillus places us in this advantageous position—we now know what consumption is; before it we did not know what it was.

From this point our knowledge has progressed and is forging ahead day by day, so that but a few years may elapse before we shall be able to place consumption in its various forms of lung disease, hip disease, and scrofula, among the preventable and curable diseases.

It is important to note that, since last year, the United States Government has classed consumption as a dangerous and contagious disease, and immigrants suffering from it are now ordered to be returned to the country from which they came.

Papers were read on this subject by the great English Scientist, Professor Burdon Sanderson, of Oxford University; Prof. Bang, of Copenhagen; Prof. Arloing, of Lyons; Dr. MacFadyean, Metshinkoff and Roux, and Prof. Ehrlich, of Berlin.

The following is an abstract of the principal papers:—

"Professor Burdon Sanderson, in the course of his remarks, said: He would speak principally on the etiology of tuberculosis, which

would not be so interesting as yesterday's discussion. There are two branches of study: 1. Pathological or Etiological. 2. Practical, for the uses to which the knowledge given by the first can be put. There are several points which might be accepted as fact before proceeding, such as the existence of the tubercle bacillus. The identity of bovine and human tubercle, and the existence of danger in the use of tuberculous meat. There are two questions which arise: 1. That of inheritance, and its effect in the production of tuberculosis. 2. What are the channels of entrance of the tubercle bacillus? The first will not now be discussed. Concerning the second, the bacilli may enter by the lungs or intestine. Protection may be studied in reference to the individual or the community. He then referred to the conclusion of the recent Paris Conference on tuberculous meat. Arloing showed that out of every six carcasses of beef, one was tuberculous, so that if 1,000 carcasses were eaten there would be danger of infection in over 100. It must yet be proved that if we did not eat tuberculous meat we should be free from tuberculosis. Chauveau and Baumgarten were the first to draw attention to the danger of eating tuberculous meat. Baumgarten showed that tuberculosis was primarily an affection of the lymphatic system. We still are in want of more experimental research. It was no answer to say that the dangers of tubercle infection were exaggerated. From statistics it is shown that 14 per cent of deaths are due to tuberculosis. The deaths are found principally in infancy, before four years, and between 20 and 30 years. In ordinary phthisis the lungs are primarily affected, no matter where the infection is introduced. In experiments with animals, if the tubercle material is inoculated under the skin the lungs are the first part affected. It is thus seen that although the infection is first absorbed by the gastro-intestinal tract, the lungs may be the first parts affected. Tubercle of the intestine does not occur primarily, but it does secondarily in the adult. It can often be traced from the lungs along the larynx to the intestines. In childhood the case is different. So far this branch has not been sufficiently studied. Where systematic bacteriological observations have been carried on in children's hospitals statistics show that nearly one-third of the deaths are accompanied by tuberculous lesions. The lymphatic glands are first affected, afterwards the bones. The reason that measles and whooping cough are so frequently followed by tuberculosis is probably that the subject has already tuberculosis of the lymphatic system, and the broncho-pneumonia following easily becomes tuberculosis. These cryptogenetic tuberculous affections must be put down to conditions present before birth. As regards the consumption of tuberculous meat, it may be maintained that it is dangerous, but if we had a law to-morrow to forbid the sale of tuberculous meat it would entail great expense, as we must have some one scientifically trained to correctly diagnose the condition; everything depends on the diagnosis. The veterinary surgeon is not competent to make what the French call the "diagnose precise." The judge must have a scientific education and a special technical skill, just as the tea-tasters must have a special training."

Conclusions.—"There are not facts enough as yet to say definitely that tubercle taken by the intestine produce general tuberculosis, but

in children tubercles of the intestine are followed by tubercle of the glands and the bones, so that we may infer that the same may occur in the adult; but we are in great want of more experimental research. More evidence is wanting as to the cause of tubercle in infancy. As regards Government administration, the reader advises a strict system of inspection extending over the whole country, acting equally in different parts. Tubercle should be included in the Infectious Diseases Prevention Act. We still want information as to the actual prevalence of tubercle. About five per 1,000 cattle are generally condemned as tuberculous. This involves compensation, which will require extra taxes (which would be very small) to be levied.

Professor Bang (of Copenhagen) then read a paper on the alleged danger of consuming the apparently healthy meat and milk of tuberculous animals:

The great majority of investigators agree that the essential source of tuberculosis in a man is to be found in man himself; and nearly all admit that man can contract the malady by the ingestion of meat or milk from animals affected by tuberculosis. As to the extent of this danger opinions differ. In France, a Presidential decree has forbidden the sale and use of milk from tuberculosis cows; but Professor Bang regards the application of these measures as impossible in countries where tuberculosis is prevalent; and moreover, they do not seem to him to be necessary. Professor Bang describes a number of experiments which he has made on this subject with tuberculous cows. Of 58 cows whose milk was inoculated into rabbits and guinea-pigs, there were nine in which the milk proved virulent. On the whole he thinks the milk of a tuberculosis cow with udders apparently healthy is not in the great majority of cases dangerous, though it is undoubtedly so sometimes, and is always suspicious. As to meat, Professor Bang thinks the experiments by others show that the muscular tissue is so unfavourable a nidus for the tubercle bacilli that they do not multiply in it. The number of bacilli found in the meat of tuberculous animals must always be very limited.

Paper by Professor McFadyean and G. Sims Woodhead, M.D., &c:

"As the result of a large number of observations made on tuberculosis in children, we think this question can probably be answered in the affirmative. Is the flesh of tuberculosis animals capable of setting up tuberculosis (a) when introduced en masse; (b) When the expressed juice is only exhibited? Our experiments go to prove that the juice only, does not, in most cases, contain a sufficiently large number of bacilli to set up tubercle, even when inoculated into small rodents, but from the fact that we have observed tuberculosis masses in the muscles of the buttock of tuberculous cattle, we must accept the fact that tubercle bacilli may sometimes, perhaps rarely, be present in considerable numbers in this position. Of three cows slaughtered on one day at one slaughter-house, well defined tubercle was found in the muscles of the buttocks of two animals; in one of these there was tuberculosis in almost every organ and part of the body; in the other there were only a few nodules in the lung and in some of the glands, there were certainly no pleural or peritoneal tubercle, and all the other organs were unaffected—a very important case. The records of a number of positive feeding experiments made

by various observers go still further to prove that tubercle bacilli are actually, in certain cases, present in the muscles or in the intermuscular connective tissue, and are there a possible, though perhaps a comparatively rare, source of danger. A resume of our own and previous experiments indicates that this source of danger is not frequently present, but that it may exist in a certain proportion of cases.

Milk.—Hitherto too little attention has been paid to this subject in this country; this has been the outcome of our inability to diagnose with certainty the presence of the earlier stages of tuberculosis in cattle. We consider that the conditions of the udder in tuberculous cows and of the conditions under which tubercle bacilli are found in milk should be more carefully studied, and that there is a necessity for thorough and frequent examination of all dairy cattle, because of the rapidity of onset of tuberculous disease in the udder.

Tubercle bacilli in milk.—There is relation of numbers in the milk to virulence of infection in inoculated animals. A bactericidal action of milk on tubercle bacilli is not yet proved. Bang points out that different results have been obtained in different cases by various observers, because they have experimented on different animals.

There is a necessity for drawing special attention to this subject, as it is now agreed that although in the later stages tubercular mammitis is readily diagnosed, there appears to be a period during which it is clinically impossible to make it out (except by inoculation of small animals); at this stage tubercle bacilli are present in the milk in very small numbers, though in sufficient numbers to render the consumption of such milk dangerous for weakly children.

Professor McFadyean also remarked that the danger of the tuberculous milk was diminished by dilution with sound milk. He thought there was great necessity for a fortnightly inspection of milch cows by a veterinary surgeon. No phthisical patient should be in a dairy. The question as to the danger of eating meat from a tuberculous cow must still be answered, as many thought it to be a local disease. The main cause of tuberculosis was from animals. His paper was cut short from want of time, but in the main he agreed with Dr. Bang, but he has not yet sufficient evidence to be decided on the question of total seizure of meat."

SECTION IV.

"Relation of diseases of animals to man." In this section the same subject was discussed under the following heads:—

"Relation of Milk Supply with reference to diseases transmissible by milk."—By Dr. Ostertag of Berlin.

"Meat infections and Food poisoning."—By Dr. Ballard, F. R. S.

"Infections of Meat and Milk."—By Victor C. Vaughan, U. S. A.

The practical points brought out by these papers were as follows:—

(1) The facility with which meat and milk might become sources of disease and poisoning.

(2) The importance of inspection.

(3) The necessity of absolute cleanliness in slaughter houses, meat curing and packing establishments, in dairies, and in all places (cellars) in private houses where food is kept.

(4) The great danger of uncooked or half cooked meat together with the fact that the prolonged application of heat in the process of cooking destroyed all micro organisms.

SECTIONS V, VI and VII included Chemistry and Physics, Architecture and Engineering in relation to Hygiene.

The following were among the subjects discussed:—Town fogs; air of large towns; means of preventing smoke from factories and dwellings; sewage, its proper disposal; sewage farms; open spaces for health and recreation in cities and large towns, some insanitary superstitions in House Building, Water Supply, its source and purity, and exclusion of damp from dwellings.

The following extracts from some of the principal papers will be found of interest:—

OPEN SPACES, BY THE EARL OF MEATH.

Granted that fresh air and open spaces are needed for the health of the inhabitants of our larger towns, we will briefly consider the two ways of satisfying this need, namely:—

1st. A systematic acquisition and preservation of land for public recreation, in connection with the towns and in relation to their growth.

2. Increased facilities for taking people from the towns into the country.

In the towns themselves the governing bodies—the councils—should lay down and should carry out some such rules as the following:—

That public recreation grounds should be provided in each parish, in proportion in the number of its inhabitants.

This would mean that there should be a fixed minimum of open space for a limited number of the population. Here and there the minimum would be exceeded, and so much the better for the people, but it should always be reached, either by securing existing open spaces for the people for ever or by acquiring new ones, and this, if need be by pulling down houses for the purpose. And for the information of those who are now well acquainted with the question of acquiring open spaces, I would mention that much may be done in the towns by securing and throwing open enclosed and deserted squares, disused graveyards, the remnants of village green (where such have become merged into the towns), vacant plots of railway land, abandoned wharves, market places, etc., etc. The Open Spaces Act of 1887, amended in 1881, 1887, and 1890, the Disused Burial Grounds Act of 1884, with its amendments, and other measures give all the power that is needed to local bodies to carry out these improvements. The Metropolitan Public Gardens Association, which has been at work in London since the close of the year 1882, has laid out, or assisted to lay out, 65 gardens and playgrounds, for the use of the public; has given grants of seats for 31 other sites, either streets or open spaces; has granted money towards the formation and maintenance of 22 public gymnasia; has secured the opening of 166 playgrounds belonging to the London School Board (on Saturdays); and the laying out and throwing open of 19 recreation grounds; has planted trees, and given grants for tree planting in 37 thoroughfares and other sites; has opposed encroachments on 18 disused burial grounds, commons, and open spaces; and has in other ways assisted in the preservation and formation of very many useful recreation grounds. What has been done in London (and it is very little com-

pared to what needs doing) can be done in the other large towns there is the same opportunity for improving them by bringing green grass, bright flowers, and shady trees into the dingy and monotonous streets.

In the towns themselves there should be every effort made to have beautiful streets, with trees and seats in them, and beds of flowers and creepers planted on bare walls, instead of neglected and dirty corners. Every disused graveyard and deserted enclosure should become a bright garden, and every plot of unused land be made into a children's playground or an outdoor cafe.

Dr. Alfred Carpenter on "The duty of a locality to utilise the nitrogenous matter in its sewage for the benefit of the nation":

"The object of this paper is to show that localities have duties to the nation to which they belong. The cost of utilising sewage may exceed the financial returns from the cultivated lands and for the excess the locality utilising the sewage will have to pay, but the author contends that the increased production of crops tends to decreased price, which is a national advantage; and he expresses the belief that density of population need not involve high priced provisions if the excreta of the population be properly used in agriculture, and that it is the duty of a nation to produce a sufficient amount of food for the people, so as to be independent of the foreigner in the event of war. He contends that the non-utilisation of sewage leads to conditions which allow of the production of disease germs and the multiplication of epidemics. He supports his arguments by the results which have been attained in Croydon, at the expense of a two penny rate, and shows that, for this, there has been a diminished death-rate, illness correspondingly reduced five-fold, production of crops on the land, giving employment to many people in the open country, in this way withdrawing them from the crowded towns; and a great production of meat and milk; thus, to some extent, ensuring the nation against the fear of famine if war should break out, and supplies from abroad be stopped. The author strongly protests against any measure being taken to destroy the agricultural value of sewage as being opposed to national interests; and, comparing the sewage of London with that of Croydon is utilised, and that the nation would be recouped for this expenditure if the interest on the amount expended were guaranteed by the state.

Dr. Carpenter also read a second paper upon, "The Power of Soil and Vegetation combined to destroy Disease Germs, and so Prevent the possibility of the Spread of Ethetic Disease in consequence of Sewage Farming."

The author refers to the International Medical Congress of 1881, when he submitted a serious of propositions tending to prove that sewage farming was safe. He now reproduces five of the nine propositions then submitted. 1. That the judicious application of sewage in close proximity to dwelling houses does not depreciate the health of the inhabitants. 2. That the judicious application of sewage to land will satisfactorily cleanse the effluent water, and fit it for discharge into any ordinary rivulet or water-course. 3. That vegetables from fields continuously irrigated by sewage are satisfactory food for man and beast, and that animals fed mainly on sewage

grown crops are as healthy as animals fed on ordinary agricultural produce. 4. The germs which spread infectious disease are not capable of reproduction on properly cultivated sewage farms, the chemical and vital conditions of the surface of the soil being contrary to their further development. 5. In order to produce the results described in proposition 4, it is requisite that the sewage be kept near the surface, moving over the land rather than through it in a downward direction. It must be kept within the influence of vegetable root fibrills and of the humus of the soil, and under-drainage is not a necessity. The author supports these propositions by a reference to the experience gained during the past 31 years on the Bedington Sewage Farm; proofs being adduced mainly from observations made during the last ten years.

Mr. Alfred Baechling, C. E., said that in Leicester every chemical process had failed. He compared the sewage systems of London and Berlin. The latter place was drained upon the radical system. The town was divided into twelve drainage districts, each independent of one another. There were four sewage farms at work in Berlin, which were very effective. The death rate on these farms from zymotic disease has been decreasing until in 1889 it had come down to nil. During an epidemic of typhoid not a single case recorded on the farms.

Dr. Gibert asked if a large quantity of the solid matter was not got rid of before going on the farm?

Mr. Baechling replied in the negative.

Dr. Gibert said that under certain conditions there was no question that organic matter from sewage could be removed by the soil. He could not go so far as Dr. Carpenter in condemning intermittent filtration, as there were towns where it would be impossible to treat the sewage otherwise. Neither did he consider that sufficient food might be grown for our own consumption.

Colonel Jones, V. C. C. E., agreed entirely with the remarks of the President on Dr. Thresh's paper, and stated his view on the practical question, "Will a Sewage Farm Pay?" For the London question he referred to the Canvey Island scheme.

Mr. G. H. Bremner was in favour of an aeration process of sewage treatment, and had no doubt if the London County Council put down aeration machinery no more fault would be found with London sewage.

Mr. H. H. Statham, F. R. I. B. A., read a paper on "Some Insanitary Superstitions in House Building."

"The remarks in this paper refer more especially to houses built in large and crowded cities. Houses built in open situations in the country are permeated by an atmosphere comparatively pure and clean. Houses in large towns are permeated by an atmosphere laden with impurities, which are continually being deposited on every surface that will retain or absorb them. They are also subject, unless carefully watched, to the incursion of various types of vermin. It is, therefore desirable that houses should be constructed of materials the least likely to absorb and retain impurities, and that the method of construction should be such as to leave no unlighted and inaccessible spaces.

The habitual construction of ordinary houses in England is not in accordance with these requirements. For many generations the orthodox manner of making a house-floor has been to lay wooden joists from wall to wall with boards nailed down above, and a lath and plaster ceiling beneath, the space between being an unseen cavern for the accumulation of whatever dirt and decaying matter can find its way in. What the results may be I once saw in the worst form in a case where the boards of an East End school room were taken up to ascertain the condition of the joists. The space between those joists was filled nearly to the top with dirt and dust, over which the children had been daily collected. Such a floor would not be allowed in a modern London board school, but it is the accepted floor for a dwelling-house; and though the conditions of a well-kept dwelling house do not encourage such an accumulation as this, I believe the tenants of the best kept London house which has been inhabited for any length of time would be disagreeably surprised at the amount of dirt they would find under their flooring boards if they looked for it. The old-fashioned system of ceiling up to the under side of the flooring boards and leaving the joists visible is far more sanitary; the drawback is that it is unsightly, and that it does not shut out sound sufficiently. Double flooring boards with felt between would get over the latter objection to some extent; but what I wish to recommend is the general adoption of solid floors of iron and concrete, with a wood block or plain parquet floor on them, for the average town dwelling house.

It has for many generations been the recognised faith that a house roof can only be made by means of rafters laid on the slope with a tie at the foot, and with ceiling joists either at the springing of the roof or part way up the slope. The advantage of this is that the upper rooms which go partly into the roof are rendered inconvenient and unsightly by a low sloping ceiling to half the room, and that above the ceiling joists is a dark cavern between them and the roof, into which no one ever sees, and where dirt may accumulate and vermin may breed undisturbed. It is really an almost alarming thought to reflect what is the probable cubic content of these dark caverns in the roofs of houses over all London. If it be thought necessary to go on building sloping roofs either the whole slope of the roof should be thrown into the top rooms, as the visible ceiling, or the ceiling of the highest living rooms should be at the level of the roof springing, and the space between that and the rafters should be treated as storage space, easy accessible and sufficiently lighted to be readily examined from time to time. But, in fact, it is entirely unnecessary, in these days of iron and concrete, and tile that we should build sloping roofs at all; the doing so is a mere superstition, except where reasons of architectural effect are concerned, and certainly architectural effect does not concern itself much in the ordinary house roof. With flat roofs with a cement finish and sufficient fall to run the rain to the gutters, we should get rid at once of all these dark caverns, the exterior and interior of the roof would coincide in shape, and convenience and healthfulness would be alike consulted. The whole tribe of things called "skirtings" and "casings" are superstitions of the same kind for providing dark, inaccessible places

where no cleansing hand can ever come. Baths and water closet basins are surrounded with these foolish fences of joinery; whitened sepulchres, which indeed appear neat outwardly, but within they are full of—no one knows what, for no one ever looks. Let both water-closet and bath stand open to inspection all round, instead of being cased in. In the matter of the bath, the money spent on panelled casing and "polished" baywood or mahogany top" would go far to render the bath itself a neat and presentable piece of furniture.

Casings for pipes are, no doubt, necessary, and are generally specified to be screwed on, so as to be removable when required. They never are removed, or the space behind seen except when something is wrong with a pipe. They should be hinged, and made with button fasteners, so that they can be opened every day without any trouble. Among other drawbacks, they form a private lift or elevator for the cockroach, who is fond of warmth and is enticed to ascend along the line of the hot-water pipes. The cockroach is bad enough in the kitchen, but a good deal worse in the bed-room; it is hardly worth while to afford him the luxury of a private passage, heated with hot-water to the upper floors.

The passion for sash windows in this country leads to the employment of another system of wooden trawling built up round the windows, with hollow, inaccessible boxes for the lines and weights; besides (generally speaking) another set of hollow spaces behind the back of the shutter casings. It is perfectly possible to make sash windows without pulleys and weights in more ways than one, unless when they are very large and heavy. But the casement window has the advantage that it can be hung in solid frames without any of this bandbox work round it, and making it weather-tight is merely a matter of care and scientific construction. It is worth consideration whether we should not do better to return to it as the more wholesome and sensible structure of the two.

Wall paper is a simple and inexpensive means of producing decorative effect in a room, but papers should be close in texture and smooth in surface. Papers with embossed surfaces, and above all, what are called "flock" papers, are dust holders, and such wall surfaces cannot be kept properly clean. Coloured plaster, finished with a hard surface, is more sanitary than any paper, considering that the paper has a layer of paste behind it which becomes rotten in time. If, however, papers are renewed often enough, and the plaster stripped and well scoured at each renewal, the insanitary element in them is not of sufficient importance to counterbalance the decorative gain.

Large and deep plaster mouldings and decorations are now, fortunately, going out of fashion on æsthetic grounds; they are injurious to the cleanly condition of a house, affording so many pockets for the lodgment of dirt. As long as they are kept flat and in low relief there is no harm in them. The wooden mouldings with a hollow on the top, which are now much used to take picture hooks, are objectionable, as the hollow is always full of dust. The old brass picture-rods are much to be preferred in this respect.

Furniture which is a kind of minor architecture, has its superstitions of construction, the worst of which is the system of finishing large wardrobes, book-cases, etc., with a cornice standing up all around

the top, leaving a wide pit for dust, which is never seen and cannot be swept. This cornice is a mere fashion, utterly useless and absurd, the top should be made level, or (still better) sloping, and with no raised ledge upon it, so that it can be swept. It is best of all to make large erections of this kind as fixtures carried up to the ceiling, and finished with a moulding against the ceiling, then there is no place where dust can accumulate.

The last superstition I will mention concerns that important receptacle, the cistern. The cistern should be in a well-lighted place, where it can be easily seen by day. The best way would be to make it as an aquarium tank is made, with a front of plate glass so that you can see the light through the water.

Mr. Collins said that there were many practical points in the admirable paper read by Mr. H. H. Statham, which the architects of this country have had before them not for the first time. There are many other ways of constructing floors without the use of iron and concrete, he might mention *terra cotta* as one of these. There had been floors made of solid wood blocks which were not very expensive. The reason why floors are constructed in the present unhygienic manner is the extra expense involved in making solid floors. With regard to building flat roofs to houses he thought that they would hold a great quantity of water compared to the present sloping roofs, which would cause dampness. With regard to the windows recommended in Mr. Statham's paper, they are very inconvenient and occupied a considerable space.

Mr. Chas. Lucas, of Paris, insisted on the many inconveniences alluded to by Mr. Statham, and which also exist in France. Thanks to the damp-proof courses, either in iron, brick or concrete, at all events in great towns, the consequences of dampness on the soil were to a great extent removed. On the other hand, we still have in houses too many obscure and non-aerated corridors, too many alcoves, too many staircases ventilated only at the lower part. One has also to struggle against hangings, curtains, etc., which the upholsterer places about our windows to prevent the penetration of both air and light. Our sanitary fittings, *e. g.*, lavatories, baths, closets, require suitable situations and proper surveillance."

Refuse Destructors.—By Charles Jones, A. M. I. C. E., F. S. I.

"The dealing with house refuse is a fruitful cause of much contention. The old methods of disposing of the contents of the dust-bins were most difficult, and the rapid growth of our busy towns has made the dust and refuse question a burning one. Difficulties, expense, and danger of removing refuse to the nearest shoot or barging it away to outside districts. Nearly forty years since furnaces were constructed for the purpose of destroying refuse, and these only in crude forms. This led to the introduction by Mr. Fryer (of Manlove, Alliott & Co.) of "the Destructor," and further inventions followed; Pickford, with the "Gourmand," one part of which was of the highest importance, viz., that which dealt with the fumes by second fires. Then followed others by Healy (at Bradford), Thwaites, Young, of Glasgow, Wilkinson, of Birmingham, Burton, of Stafford, and Pearson, of Burnley, with the "Beehive," and Nelson, and several others. No reliable

information can be given as to the cost of erection, it being so much affected by site, height of shaft, level of ground, &c. The cost of burning per ton of refuse also varies considerably. In some towns the residuum is a marketable commodity, &c. At first there was a difficulty in dealing with the gases given off by the material in the first stage of burning and the dust which escaped from the shaft, which was the cause of serious complaints, and prevented the introduction of the "Destructor." After earnest investigation, and careful consideration, "Jones' Fume Cremator" was the result, and these complaints are now things of the past. The "Destructor," if properly worked, may be used anywhere without the slightest fear of any complaint arising. The gases are subjected to a temperature of from 11,008 to 15,008 F., at little expense of fuel. The heat thus generated is used in a variety of different ways in connection with tubular boilers for pumping, for pneumatic ejectors, for driving dynamos, and working of various machinery for sanitary works, &c., thus effecting a considerable saving, and, after repaying principal and interest, leaving a balance, a result which is infinitely better than the old method of disposing of the refuse by barging and railway conveyance to a distance, &c. The paper was illustrated with diagrams of the different forms of destructor now in use."

In Section IX, State Medicine, the subject of Cremation was introduced in an able paper by the celebrated advocate of that method of the disposal of the dead—Sir Henry Thompson. After considerable discussion, in which Sir Henry had many opponents, the following resolution was adopted:—

"That the Cremation of the dead is a rational and Hygienic procedure, which is especially called for where death occurs from contagious disease."

Dr. P. F. Van Hamel Roos of Amsterdam, read a paper in Adulterations and International Measures for their repression.

Dr. Sanford Thorne, read a paper on State Control of the sale of Poisons. After discussion,

The following resolution was adopted:—

"That, in the opinion of the International Congress of Hygiene and Demography, it is essential, in the public interests, that the existing law regulating the sale of poisons should be amended, and greater restrictions placed on the sale of poisons, and this especially in Great Britain and her colonies."

A special meeting of the whole Congress was held at the day of the Session to consider the subject of the National Registration of plumbers in relation to the Public Health.

The following resolution was adopted by the Lord Provost of Edinburgh, seconded by Bailie Crawford (Chairman of the Health Committee of the City of Glasgow) and supported by Sir Chas. Cameron, M. D. (Medical Officer of Health for the City of Dublin), and passed:

"That this special meeting of the International Congress of Hygiene, assembled to consider the necessity for securing the greater sanitary efficiency of the plumbers' work and drainage of dwelling houses and other buildings, desires to record its opinion that an organised and efficient system of registration of qualified plumbers is essential to the protection and preservation of the health of the com-

munity, and that such a system having been established in the chief cities and towns of Great Britain and Ireland by the joint action of the Worshipful Company of Plumbers, London, and the plumbers and sanitary authorities of those places, the time has now arrived when application should be made to Parliament for powers enabling a council of competent jurisdiction and authority to take measures for systematically promoting technical education among plumbers in all parts of the United Kingdom and regulating the practise of those plumbers who are enrolled as registered plumbers."

CONCLUSION.

In conclusion I beg to call attention to the fact that in this country Legislation in regard to the Public Health does not receive the attention it deserves. This is true of all the Provinces in the Dominion. It is a fact that many excellent laws in the direction of Sanitary reform have been enacted in the past few years, but they fall far short of what is necessary—urgently necessary.

It is a misfortune that many subjects relating to the public Health come within the scope of Federal Legislation while many others belong to the Local Parliaments. The subject of Vital Statistics (Demography) Quarantine and Food adulteration belong to the Dominion, while almost all other divisions of the subject come under the Provincial Parliaments.

This circumstance must always remain a serious difficulty in the way of effective legislation.

In the session of the Dominion Parliament of 1890 when an effort was made to bring this subject prominently forward, the following resolution was moved:—

"That, in the opinion of this House, the time has come when the Federal Government should establish a Health Department with a responsible head, presided over by a Minister or Deputy Minister, for the purpose of preventing the spread of disease, collecting mortuary statistics, and educating the people, as far as possible, in all Health and sanitary matters."

After debate which included lengthy and able speeches by the Mover and Seconder of the resolution, the late Premier Sir John A. Macdonald in the course of his reply on behalf of the Government said:—

"Now when you consider that all county and municipal officers and the whole educational system of the country are under the jurisdiction of the different Provincial Governments, you will see that in the employes of those Governments are to be found the best men and means for collecting information, for assisting in preventing the spread of disease, and for educating people in sanitary matters. In each of the Provinces, there is to be found an enormous body of educated men in the school masters. Those men would, as a matter of course, be available, and would be only too glad, I have no doubt, to aid in this important and humane object. The Federal Government, on the other hand, have spread throughout the country only a few Custom House officers, excisemen, and such officers, and if the responsibility of attending to this subject were thrown upon the Federal Government only, it would be absolutely necessary to appoint a staff of special health officers at

an enormous expense, who would not be able to do the work so well as the Provincial Governments with their extensive machinery. It has occurred to me, after listening to the very able speeches of the hon. gentlemen who have spoken, that the best plan would be, and I would suggest it to my hon. friend before asking him to withdraw his resolution, after having fully impressed Parliament with the subject, to have a convention, to which the Federal Government would ask the various Provincial Governments to send representatives, for the purpose of endeavoring to frame some united plan for exercising the various powers conferred upon them by the constitution in such a manner that they could unite in one system and carry it out as efficiently and inexpensively as possible. It has occurred to me only since I have heard this discussion, that the general feeling of the House is that that suggestion could well be carried out, and we might combine the Provincial and the Federal Governments in the adoption of some united system in order to carry out this great object as efficiently and inexpensively as possible."

It will be seen that we have here a plan suggested which might succeed in overcoming the difficulty of conflicting Federal and Provincial Jurisdiction. I earnestly hope that the suggestion may be acted on at an early day. In an estimate made up from the mortuary statistics collected by the Dominion Government, it is estimated that, allowing for all sources of error, there are fifteen thousand preventable deaths every year in the Dominion of Canada, and yet we go on, without giving this startling fact our serious consideration. It seems almost incredible that we should spend thousands of dollars in an Immigration department to bring population to the country from other lands, while neglect of Sanitary laws takes away from us our own sons and daughters in about almost the same numbers that immigrants are brought from abroad.

It is a strange fact that everything that ministers to our comfort or convenience makes its imprint upon our Legislation, except the important subject considered in this report. I think, however, I can fairly say that each year sees greater attention given to sanitary science and the application of its teachings to the Public Health, and we can hopefully look forward to the time when a health department will take its place with the other departments of State in this Dominion.

All of which is respectfully submitted,

EDWARD FARRELL, M. D.